

Color

```

5 \newgray{color}{num}
5 \newrgbcolor{color}{num1 num2 num3}
5 \newhsbcolor{color}{num1 num2 num3}
5 \newcmykcolor{color}{num1 num2 num3 num4}

```

Setting graphics parameters

```

6 \psset{par1=value1,par2=value2,...}

```

Dimensions, coordinates and angles

```

7 unit=dim                      Default: 1cm
7 \pssetlength{cmd}{dim}
7 \psaddtolength{cmd}{dim}
7 xunit=dim                     Default: 1cm
7 yunit=dim                     Default: 1cm
7 runit=dim                     Default: 1cm
8 \degrees[num]
8 \radians

```

Basic graphics parameters

```

8 linewidth=dim                 Default: .8pt
8 linecolor=color               Default: black
9 showpoints=true/false        Default: false

```

Lines and polygons

```

10 lineararc=dim                Default: 0pt
10 framearc=num                 Default: 0
10 cornersize=relative/absolute Default: relative
10 \psline*[par]{arrows}(x0,y0)(x1,y1)...(xn,yn)
10 \qline(coor0)(coor1)
11 \pspolygon*[par](x0,y0)(x1,y1)(x2,y2)...(xn,yn)
11 \psframe*[par](x0,y0)(x1,y1)

```

Arcs, circles and ellipses

```

11 \pscircle*[par](x0,y0){radius}
11 \qdisk(coor){radius}
12 \pswedge*[par](x0,y0){radius}{angle1}{angle2}
12 \psellipse*[par](x0,y0)(x1,y1)
12 \psarc*[par]{arrows}(x,y){radius}{angleA}{angleB}
12 arcsepA=dim                  Default: 0pt
12 arcsepB=dim                  Default: 0pt
13 arcsep=dim                    Default: 0
13 \psarcn*[par]{arrows}(x,y){radius}{angleA}{angleB}

```

Curves

```

13 \psbezier*[par]{arrows}(x0,y0)(x1,y1)(x2,y2)(x3,y3)
14 \parabola*[par]{arrows}(x0,y0)(x1,y1)
14 curvature=num1 num2 num3     Default: 1 .1 0

```

- 15 `\pscurve*[par]{arrows}(x1,y1)...\(xn,yn)`
 15 `\psecurve*[par]{arrows}(x1,y1)...\(xn,yn)`
 15 `\psccurve*[par]{arrows}(x1,y1)...\(xn,yn)`

Dots

- 15 `\psdots*[par](x1,y1)(x2,y2)...\(xn,yn)`
 16 `dotstyle=style` Default: *

Dot styles

Style	Example	Style	Example
*	• • • • •	square	◻ ◻ ◻ ◻ ◻
o	◦ ◦ ◦ ◦ ◦	square*	◻ ◻ ◻ ◻ ◻
+	+ + + + +	pentagon	◊ ◊ ◊ ◊ ◊
triangle	▲ ▲ ▲ ▲ ▲	pentagon*	◊ ◊ ◊ ◊ ◊
triangle*	▲ ▲ ▲ ▲ ▲		

- 16 `dotscale=num1 num2` Default: 1
 16 `dotangle=angle` Default: 0

Grids

- 17 `\psgrid(x0,y0)(x1,y1)(x2,y2)`
 18 `gridwidth=dim` Default: .8pt
 18 `gridcolor=color` Default: black
 18 `griddots=num` Default: 0
 18 `gridlabels=dim` Default: 10pt

- 18 `gridlabelcolor=color` Default: black
 18 `subgriddiv=int` Default: 5
 18 `subgridwidth=dim` Default: .4pt
 18 `subgridcolor=color` Default: gray
 18 `subgriddots=num` Default: 0

Plots

- 19 `plotstyle=style` Default: line
 20 `\fileplot*[par]{file}`
 20 `\dataplot*[par]{commands}`
 20 `\savedata{command}[data]`
 20 `\readdata{command}{file}`
 21 `\listplot*[par]{list}`
 21 `\psplot*[par]{xmin}{xmax}{function}`
 22 `\parametricplot*[par]{tmin}{tmax}{function}`
 22 `plotpoints=int` Default: 50

Coordinate systems

- 24 `origin={coor}` Default: 0pt,0pt
 24 `swapaxes=true` Default: false

Line styles

- 24 `linestyle=style` Default: solid
 25 `dash=dim1 dim2` Default: 5pt 3pt

25	<code>dotsep=dim</code>	Default: 3pt
25	<code>border=dim</code>	Default: 0pt
25	<code>bordercolor=color</code>	Default: white
25	<code>doubleline=true/false</code>	Default: false
25	<code>doublesep=dim</code>	Default: 1.25\pslinewidth
26	<code>doublecolor=color</code>	Default: white
26	<code>shadow=true/false</code>	Default: false
26	<code>shadowsize=dim</code>	Default: 3pt
26	<code>shadowangle=angle</code>	Default: -45
26	<code>shadowcolor=color</code>	Default: darkgray
26	<code>dimen=outer/inner/middle</code>	Default: outer


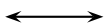
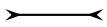
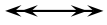
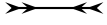
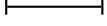
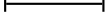









Fill styles

27	<code>fillstyle=style</code>	Default: none
27	<code>fillcolor=color</code>	Default: white
27	<code>hatchwidth=dim</code>	Default: .8pt
27	<code>hatchsep=dim</code>	Default: 4pt
27	<code>hatchcolor=color</code>	Default: black
27	<code>hatchangle=rot</code>	Default: 45

Arrowheads and such

28	<code>arrows=style</code>	Default: -
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Arrows

<i>Value</i>	<i>Example</i>	<i>Name</i>
-		None
<->		Arrowheads.
>-<		Reverse arrowheads.
<<->>		Double arrowheads.
>>-<<		Double reverse arrowheads.
-		T-bars, flush to endpoints.
* - *		T-bars, centered on endpoints.
[-]		Square brackets.
(-)		Rounded brackets.
o - o		Circles, centered on endpoints.
* - *		Disks, centered on endpoints.
oo - oo		Circles, flush to endpoints.
** - **		Disks, flush to endpoints.
C - C		Extended, rounded ends.
cc - cc		Flush round ends.
C - C		Extended, square ends.

30	<code>arrowsize=dim num</code>	Default: 2pt 3
30	<code>arrowlength=num</code>	Default: 1.4
30	<code>arrowinset=num</code>	Default: .4
30	<code>tbarsize=dim num</code>	Default: 2pt 5
30	<code>bracketlength=num</code>	Default: .15
30	<code>rbracketlength=num</code>	Default: .15
30	<code>dotsize=dim num</code>	Default: .5pt 2.5
30	<code>arrowscale=arrowscale=num1 num2</code>	Default: 1

Custom styles

31 `\newpsobject{name}{object}{par1=value1,...}`

31 `\newpsstyle{name}{par1=value1,...}`

The basics

32 `\pscustom*[par]{commands}`

Parameters

33 `linetype=int`

Default: 0

Graphics objects

35 `liftpen=0/1/2`

Default: 0

Safe tricks

36 `\newpath`

36 `\moveto(coord)`

36 `\closepath`

36 `\stroke[par]`

37 `\fill[par]`

37 `\gsave`

37 `\grestore`

38 `\translate(coord)`

38 `\scale{num1 num2}`

38 `\rotate{angle}`

38 `\swapaxes`

38 `\msave`

38 `\mrestore`

38 `\openshadow[par]`

38 `\closedshadow[par]`

38 `\movepath(coord)`

Pretty safe tricks

39 `\lineto(coord)`

39 `\rlineto(coord)`

39 `\curveto(x1,y1)(x2,y2)(x3,y3)`

39 `\rcurveto(x1,y1)(x2,y2)(x3,y3)`

For hackers only

39 `\code{code}`

39 `\dim{dim}`

39 `\coord(x1,y1)(x2,y2)...(xn,yn)`

40 `\rcoord(x1,y1)(x2,y2)...(xn,yn)`

40 `\file{file}`

40 `\arrows{arrows}`

40 `\setcolor{color}`

Pictures

41 `\pspicture*[baseline](x0,y0)(x1,y1)`

41 `\endpspicture`

Placing and rotating whatever

43 `\rput*[refpoint]{rotation}(x,y){stuff}`

44 `\lput*{labelsep}[refangle]{rotation}(x,y){stuff}`

44 `\pslabelsep`

44 `labelsep=dim` Default: 5pt

Repetition

46 `\multirput*[refpoint]{angle}(x0,y0)(x1,y1){int}{stuff}`

46 `\multips{angle}(x0,y0)(x1,y1){int}{graphics}`

Axes

48 `\psaxes*[par]{arrows}(x0,y0)(x1,y1)(x2,y2)`

Axes label parameters

<i>Horitontal</i>	<i>Vertical</i>	<i>Dflt</i>	<i>Description</i>
Ox=num	Oy=num	0	Label at origin.
Dx=num	Dy=num	1	Label increment.
dx=dim	oy=dim	Opt	Dist btwn labels.

50 `labels=all/x/y/none` Default: all

50 `showorigin=true/false` Default: true

50 `ticks=all/x/y/none` Default: all

50 `tickstyle=full/top/bottom`

Default: full

50 `ticksize=dim`

Default: 3pt

51 `\psxlabel`

51 `\psylabel`

51 `axesstyle=axes/frame/none`

Default: axes

Framed boxes

52 `framesep=dim`

Default: 3pt

52 `boxsep=true/false`

Default: true

52 `\psframebox*[par]{stuff}`

53 `\psdblframebox*[par]{stuff}`

53 `\psshadowbox*[par]{stuff}`

53 `\pscirclebox*[par]{stuff}`

53 `\cput*[par]{angle}(x,y){stuff}`

54 `\psovalbox*[par]{stuff}`

Clipping

54 `\clipbox[dim]{stuff}`

54 `\psclip{graphics} ... \endpsclip`

Rotation and scaling boxes

55 `\rotateleft{stuff}`

55 `\rotateright{stuff}`

56 `\rotatedown{stuff}`

56 `\scalebox{num1 num2}{stuff}`

56 `\scaleboxto(x,y){stuff}`

Nodes

59 `\rnode[refpoint]{name}{stuff}`

59 `\Rnode(x,y){name}{stuff}`

59 `\RnodeRef`

60 `\pnode(x,y){name}`

60 `\cnode*[par](x,y){radius}{name}`

60 `\circlenode*[par]{name}{stuff}`

60 `\cnodeput*[par]{angle}(x,y){name}{stuff}`

60 `\ovalnode*[par]{name}{stuff}`

Node connections

61 `nodesep=dim`

Default: 0

61 `offset=dim`

Default: 0

61 `arm=dim`

Default: 10pt

61 `angle=angle`

Default: 0

61 `arcangle=angle`

Default: 8

61 `ncurv=num`

Default: .67

62 `loopsize=dim`

Default: 1cm

62 `\incline*[par]{arrows}{nodeA}{nodeB}`

62 `\incLine*[par]{arrows}{nodeA}{nodeB}`

62 `\nccurve*[par]{arrows}{nodeA}{nodeB}`

63 `\ncarc*[par]{arrows}{nodeA}{nodeB}`

63 `\ncbar*[par]{arrows}{nodeA}{nodeB}`

63 `\ncdiag*[par]{arrows}{nodeA}{nodeB}`

64 `\ncdiagg*[par]{arrows}{nodeA}{nodeB}`

64 `\ncangle*[par]{arrows}{nodeA}{nodeB}`

64 `\ncangles*[par]{arrows}{nodeA}{nodeB}`

65 `\ncloop*[par]{arrows}{nodeA}{nodeB}`

65 `\nccircle*[par]{arrows}{node}{radius}`

65 `\pcline*[par]{arrows}(x1,y1)(x2,y2)`

65 `\pccurve*[par]{arrows}(x1,y1)(x2,y2)`

65 `\pcarc*[par]{arrows}(x1,y1)(x2,y2)`

65 `\pcbar*[par]{arrows}(x1,y1)(x2,y2)`

65 `\pcdiag*[par]{arrows}(x1,y1)(x2,y2)`

66 `\pcangle*[par]{arrows}(x1,y1)(x2,y2)`

66 `\pcloop*[par]{arrows}(x1,y1)(x2,y2)`

Attaching labels to node connections

67 `\lput*[refpoint]{rotation}(pos){stuff}`

68 `\aput*[labelsep]{angle}(pos){stuff}`

68 `\bput*[labelsep]{angle}(pos){stuff}`

68 `\mput*[refpoint]{stuff}`

68 `\Aput*[labelsep]{stuff}`

68 `\Bput*[labelsep]{stuff}`

Coils and zigzags

70 `\pscoil*[par]{arrows}(x0,y0)(x1,y1)`

70	<code>\psCoil*[par]{angle1}{angle2}</code>	
70	<code>\pszigzag*[par]{arrows}(x0,y0)(x1,y1)</code>	
70	<code>coilwidth=dim</code>	Default: 1cm
70	<code>coilheight=num</code>	Default: 1
70	<code>coilarm=dim</code>	Default: .5cm
70	<code>coilaspect=angle</code>	Default: 45
70	<code>coilinc=angle</code>	Default: 10
71	<code>\nccoil*[par]{arrows}{nodeA}{nodeB}</code>	
71	<code>\nczigzag*[par]{arrows}{nodeA}{nodeB}</code>	
71	<code>\pccoil*[par]{arrows}(x1,y1)(x2,y2)</code>	
71	<code>\pczigzag*[par]{arrows}(x1,y1)(x2,y2)</code>	

<i>Coordinate</i>	<i>Example</i>	<i>Description</i>
(x,y)	(3,4)	Cartesian coordinate.
$(r;a)$	(3;110)	Polar coordinate.
$(node)$	(A)	Center of <i>node</i> .
$([par]node)$	([angle=45]A)	Relative to <i>node</i> .
$(!ps)$	(!5 3.3 2 exp)	Raw PostScript.
$(coord1 coord2)$	(A 1in;30)	Combination.

<i>Angle</i>	<i>Example</i>	<i>Description</i>
<i>num</i>	45	Angle.
$(coord)$	(-1,1)	Coordinate (vector).
$!ps$!33 sqrt	Raw PostScript.

73 `\NormalCoor`

Special coordinates

72 `\SpecialCoor`

Special coordinates and angles

Overlays

73 `\overlaybox stuff\endoverlaybox`

73 `\psoverlay{string}`

74 `\putoverlaybox{string}`

74 `gradbegin=color` Default: `gradbegin`

74 `gradend=color` Default: `gradend`

75 `gradlines=int` Default: 500

75 `gradmidpoint=num` Default: .9

75 `gradangle=angle` Default: 0

Typesetting text along a path

76 `\pstextpath[pos](x,y){graphics object}{text}`

Stroking and filling character paths

77 `\pscharpath*[par]{text}`
 78 `\pscharclip*[par]{text} ... \endpscharclip`

Including PostScript code

87 `\pslbrace`
 87 `\psrbrace`

Exporting EPS files

79	<code>\TeXtoEPS</code>	
79	<code>\endTeXtoEPS</code>	
80	<code>\PSTtoEPS[<i>par</i>]{<i>file</i>}{<i>graphics objects</i>}</code>	
80	<code>bblx=<i>dim</i></code>	Default: -1pt
80	<code>bblly=<i>dim</i></code>	Default: -1pt
80	<code>bburx=<i>dim</i></code>	Default: 1pt
80	<code>bbury=<i>dim</i></code>	Default: 1pt
81	<code>headerfile=<i>file</i></code>	Default: s
81	<code>headers=<i>none/all/user</i></code>	Default: none

Boxes

83 `\psmathboxtrue`
 83 `\psmathboxfalse`
 83 `\everypsbox{commands}`
 83 `\pslongbox{name}{cmd}`
 84 `\psverbboxtrue`
 84 `\psverbboxfalse`

Tips and More Tricks

85 `\PSTricksOff`